

CLAIMS

- 1 1. A method for method for decoding (extracting) a Linear Time Code (LTC) frame
2 of the type used in connection with film and television and accompanying audio, comprising the
3 steps of
4 (a) detecting a valid synchronization sequence within an incoming LTC frame while
5 measuring a predetermined symbol interval relative to a reference clock;
6 (b) determining a LTC frame direction.
7 (c) decoding payload information from the LTC frame; and
8 (d) transferring the payload information in an order determined by the LTC frame
9 direction.
- 1 2. The method according to claim 1 wherein the step of measuring the predetermined
2 symbol interval duration comprises the step of measuring how many 27 MHz clock periods occur
3 within a duration of bi-phase encoded half mark symbol interval within the LTC frame.
- 1 3. The method according to claim 2 wherein the decoding steps further comprises the
2 step of extracting successive symbols from the LTC frame using the measured 27 MHz clock
3 periods as a reference.
- 1 4. The method according to claim 3 wherein a minimum required symbol interval for
2 the 27 MHz clock is seventy.
- 1 5. The method according to claim 3 wherein a maximum allowable symbol interval
2 for the 27 MHz clock is 210,497.
- 1 6. The method according to claim 1 further including the step of filtering each
2 incoming LTC to remove a glitch.
- 1 7. The method according to claim 1 wherein steps (a)-(d) are repeated upon receipt
2 of for each successive LTC frame.
- 1 8. An LTC receiver for decoding (extracting) a Linear Time Code (LTC) frame of
2 the type used in connection with film and television and accompanying audio, comprising
3 a) first means for detecting a valid synchronization sequence within an incoming LTC
4 frame while measuring a predetermined symbol interval relative to a reference clock;

5 (b) second means for determining a LTC frame direction.

6 (c) third means for decoding payload information from the LTC frame; and

7 (d) fourth means for transferring the payload information in an order determined by the
8 LTC frame direction.

1 9. The LTC receiver according to claim 8 wherein the first means includes a first
2 counter for measuring the predetermined symbol interval duration comprises the step of
3 measuring how many 27 MHz clock periods occur within a duration of bi-phase encoded half
4 mark symbol interval within the LTC frame.

1 10. The LTC receiver according to claim 8 wherein the second means includes a
2 second counter for counting sync pulses in the incoming LTC frame to establish a LTC frame
3 direction.

1 11. The LTC receiver according to claim 8 wherein the third means includes a data
2 symbol counter for counting symbols within the incoming LTC frame.

1 12. The LTC receiver according to claim 8 wherein the fourth means includes a state
2 machine.

1 13. An LTC receiver for decoding (extracting) a Linear Time Code (LTC) frame of the
2 type used in connection with film and television and accompanying audio, comprising

3 a) first counter for measuring a predetermined symbol interval relative to a reference
4 clock;

5 a second counter for counting sync pulses within the incoming LTC frame;

6 a third counter for counting data symbols within the incoming LTC frame;

7 a shift register and

8 a state machine responsive to the counts of the first, second and third counters for (a)
9 detecting a valid synchronization sequence within an incoming LTC frame, (b) determining a
10 LTC frame direction; (c) decoding payload information from the LTC frame; and (d) for
11 transferring the payload information to the shift register in an order determined by the LTC frame
12 direction.

1 14. The apparatus according to claim 13 further comprising a glitch filter for filtering
2 the incoming LTC frame to remove glitches.

- 1 15. The apparatus according to claim 13 wherein the first counter measures the
- 2 predetermined symbol interval duration by measuring how many 27 MHz clock periods occur
- 3 within a duration of bi-phase encoded half mark symbol interval within the LTC frame.